Common drugs used in the Emergency Room  
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Routes of administration

**IV**
Intravenous administration is when the drug is given in liquid form directly into a vein. This is often done by placing a venous catheter to allow easy administration.

**IM**
Direct injection into the muscle. Often a painful mode of administration, and provides a slow route of absorption.

**PO**
By mouth (Per Orum). Typically intermediate between IM and IV in speed of absorption. *(is this true?)*

**PR**
Rectal administration (Per Rectum). The rectum is actually a very quick method of drug administration as the rectum is highly vascular. This route is often used in children.

**ET**
Certain drugs can be given down an endotracheal tube. The drugs are given at 2-2.5 times normal IV dose. Drugs are followed with a saline bolus of ~10ml. The acronym for drugs that can go down an ET tube is ALONE:

- A – Atropine
- L – Lidocaine
- O – Oxygen
- N – Naloxone (Narcan)
- E – Epinephrine
**Drug List**

**Lidocaine**
Lidocaine has 2 uses: It is a local anesthetic when injected subcutaneously (and it can be used for a nerve block). It is also an antidysrhythmic drug when injected IV (used to treat cardiac dysrhythmias). Anesthetic preparations come in 2 forms: with and without epinephrine. The epinephrine is added to reduce absorption and prolong the effect. A classic question by the resident/attending is: What is the toxic dose when used as a local anesthetic (Answer: 5mg/kg for lidocaine without epi, and 7mg/kg with epi.)

**Epinephrine**
Epinephrine is a natural substance produced by the adrenal gland (a.k.a. adrenaline). Epinephrine is used in emergencies to stimulate the heart or to dilate the bronchial tree. Its use is limited by cardiac side effects. It is also mixed with lidocaine to prolong lidocaine’s effect and to control bleeding.

**Furosemide (Lasix)**
Lasix is a diuretic, which is given IV or PO, which causes the patient to produce more urine. This is often given to reduce the fluid overload in patients with congestive heart failure (a.k.a. CHF) or hypertension.

**Diazepam (Valium)**
Diazepam is a benzodiazepine that is used both as a powerful sedative and as an anti-convulsant for patients with seizures. You will see it used for alcohol withdrawal, cocaine toxicity, and status epilepticus (i.e. uncontrolled seizures). Diazepam may produce respiratory depression.

**Midazolam (Versed)**
Versed is a very powerful short acting benzodiazepine type of sedative and is used to sedate patients for painful procedures. Excessive dosing may produce respiration depression (when given i.v.) or coma.

**Haloperidol (Haldol)**
Haldol is a antipsychotic with powerful sedative properties. It is often used for patients who are acting in a psychotic manner. It should not be used to treat alcohol withdrawal or cocaine toxicity. In sufficient quantities it will render the patient unconscious.

**Succinylcholine**
Often called “sux” (pronounced sucks), it is a paralytic, resulting in total muscular paralysis. It will most often be used for “rapid-sequence-intubation” to make tracheal intubation easier and to allow the patient to be mechanically ventilated. It has no analgesic properities and paralyzed patients see, hear and feel everything - like a zombie! - thus it is never used without sedation.
Atropine

Atropine is used for several purposes, including inducing the heart to beat faster (i.e. *chronotropy*) as well as an antidote for certain *organophosphate* poisonings. It is sometimes used as a drug for patients with severe asthma. It can also be dripped into the eyes to produce dilation of the pupil (although this is a different formulation). Can also be used to dry up respiratory secretions during procedures.

Heparin

Heparin is an *anticoagulant* used to prevent blood from clotting. It is used in patients suspected of having a myocardial infarction and to prep the syringe for an arterial-blood-gas for the same reason.

Valproic Acid

Valproic Acid is used as an *anticonvulsant* medication. It is not typically used in the emergency treatment of seizures, but toxicity can often be seen with seizure patients who have taken too much.

Phenobarbital

Phenobarbital is a barbiturate which is used either as a *sedative* and/or *anticonvulsant* medication.

Pentobarbital

Similar to phenobarbital but much faster acting and with a duration of effect. It is used as an *anticonvulsant* medication and to treat severe alcohol withdrawal. Often used in a continuous drip for patients who continue to seize.

Methylprednisolone (*Solumedrol*)

Solu-medrol is a long acting *corticosteroid*. It is often used to prevent the recurrence of anaphylaxis after the epinephrine has worn off and for patients with asthma. It has a half-life of around 6 hours.

Albuterol (*Proventil*)

Albuterol is a *bronchodilator*, used in a nebulizer for asthma patients. Typically a drop (0.5 mg) of albuterol is suspended in saline and nebulized with oxygen. Often referred to as “how many nebs the patient got”.

Ampicillin/Sulbactam (*Unasyn*)

This is an *antibiotic* (ampicillin) with the second compound added to prevent bacterial β-lactamases from working (which interfere with penicillins). This overcomes the antibiotic resistance acquired by many bacteria.
**Fluorescein**

This is a fluorescent dye used to stain the cornea to look for scratches or ulcers. Scratches and ulcers will selectively retain the dye, making them glow under the cobalt-blue light of an ophthalmoscope.

**Ketorolac (Toradol)**

Ketorolac is a powerful NSAID, used for severe headaches, musculo-skeletal pain, kidney stones and inflammation.

**Morphine Sulfate**

Morphine is a powerful opiate (derived from opium and similar to heroin) that is used as a pain killer (i.e. analgesic). However, as a side effect it can suppress respirations.

**Naloxone (Narcan)**

Narcan is the antidote to opioids such as heroin or morphine. It is very rapidly acting and competes with the opioid for the opioid receptor. Be careful when administering this drug, as it may cause withdrawal in opioid tolerant patients.

**Prednisone**

Prednisone is a corticosteroid that is given for asthma and as an anti-inflammatory. A side effect of prolonged use is Cushing’s syndrome and often you may see tremors.

**Rocuronium**

Often called "rock", it is a paralytic. Administration produces total muscular paralysis. It is most often used for “rapid-sequence-intubation” to make tracheal intubation easier and to allow the patient to be mechanically ventilated. It has no analgesic properties and paralyzed patients see, hear and feel everything and should never used without sedation.

**Pilocarpine**

Pilocarpine is dripped into the eyes to produce constriction of the pupil in patients with glaucoma.

**Dopamine**

Dopamine is a mild pressor agent, which is administered IV to produce vasoconstriction and raise a patient's blood pressure.

**Phenytoin (Dilantin)**

Dilantin is an anticonvulsant. As a side effect, when administered too fast, it can induce hypotension.

**N-Acetylcysteine (Mucomyst)**

Mucomyst is given in cases of acetaminophen toxicity (e.g. Tylenol).
tPA
Tissue plasminogen activator is a **thrombolytic agent**, used to lyse blood clots in patients with myocardial infarction (a.k.a. heart attacks), non-hemorrhagic CVA's (a.k.a. strokes) and PE's (a.k.a. pulmonary emboli). Thrombolytics can cause hemorrhage and should be used with care.

Streptokinase
Streptokinase is a **thrombolytic** (note: discovered here at NYU) made by *Streptococcus* bacteria which dissolves clots, similar to tPA (although through a different mechanism).

Diltiazem (Cardizem)
Diltiazem is a **calcium channel blocker** used to slow the heart down in patients with certain types of tachycardias such as atrial fibrillation.

Metoprolol
Metoprolol is a **beta-blocker** which is used to slow down the heart and lower blood-pressure. These drugs are not typically used in asthmatics, as they can induce bronchoconstriction.

Atenolol
Atenolol is a **beta-blocker** similar to metoprolol.

Adenosine
Adenosine (the A of ATP fame) is used as an **antidysrhythmic** to break certain cardiac dysrhythmias; it is often used in patients with supraventricular tachycardia. The half life of the drug is only a few seconds, and can often induce non-pathologic asystole (flat line on an EKG) for a few seconds.

Digoxin
Digoxin (a derivative of the Foxglove plant) is a **cardiac drug** used to slow conduction through the heart, especially in cases of atrial-fibrillation. As a side effect it can produce various dysrhythmias including ventricular fibrillation and asystole.

Metronidazole (Flagyl)
Flagyl is an **antibiotic** used against anaerobic bacteria and certain parasites. As a side effect patients can become violently ill to their stomachs from consuming alcohol with Flagyl (similar to Antabuse).

Vancomycin
Vancomycin is the “last ditch” **antibiotic**, used for highly resistant bacteria. It is fairly toxic to the patient, and often is a hobson’s choice to administer to a septic, shocky patient.
**Trimethoprim/sulfamethoxazole (Bactrim)**

Bactrim is a “sulfa” class antibiotic and is often used in urinary tract infections.

**Ketamine**

A sedative often used in conjunction with other sedatives (such as midazolam or diazepam).

**Pepcid**

Pepcid is a systemic antacid (H₂ blocker) which takes 30-45 minutes to take effect, but lasts for several hours. Similar to ranitidine (Zantac) and cimetidine (Tagamet).

**NS**

NS stands for Normal Saline, which is 0.9% Sodium Chloride, and is the usual fluid given to a patient who needs fluid due to dehydration. It is approximately isotonic.

**LR**

LR stands for Lactated Ringers, which is Normal Saline with other electrolytes. Due to the presence of the other electrolytes, there is a limit to how much can be administered within a specific period of time.

**D5, D10, D25 and D50**

The D stands for Dextrose, which is a stable form of glucose. This solution is given IV to give the patient glucose. This is never given IM, as high concentrations of glucose cause tissue death outside the vasculature.
Other useful terms

**QD**
Once per Day

**BID**
Twice per day

**TID**
Three times per day

**QID**
Four times per day

**QHS**
At the hour of sleep

**NPO**
Nothing by mouth
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